

1. An optical device for focusing light emitted from a light-generating source of a dental instrument, the optical device comprising:

a lens having a first end that is substantially flat and a second end that is curved, wherein the substantially flat first end is configured for receiving light from the light-generating source, and wherein the curved second end is configured for focusing the light received by the first end; and

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means for securely holding the lens in place with the substantially flat first end of the lens held facing the light-emitting source and for protecting the lens from contact.

2. An optical device as defined in claim 1, wherein the lens is composed of a material composition comprising at least one of glass, aluminum dioxide, sapphire, quartz, acrylic, polyacrylic, polypropylene, and silicone.

3. An optical device as defined in claim 1, wherein the lens comprises an aspheric lens such that the second end comprises an aspheric curvature.

4. An optical device as defined in claim 3, wherein the aspheric curvature comprises one of a hyperbolic curvature, an elliptical curvature, and a parabolic curvature.

5. An optical device as defined in claim 1, wherein the lens comprises a hemispheric lens such that the second end has a hemispherical curvature.

6. An optical device as defined in claim 3, wherein the means for securely holding the lens in place comprises a transparent shield that is removably attachable to the dental device and which frictionally engages the lens.

7. An optical device as defined in claim 6, wherein the transparent shield protects the aspheric lens from making contact with the light-curable compounds and enables light generated at the light-generating source to pass therethrough.

8. An optical device as defined in claim 7, wherein the transparent shield is composed of a material composition comprising at least one of glass, aluminum dioxide, sapphire, quartz, acrylic, polyacrylic, polypropylene, and silicone.

9. An optical device as defined in claim 8, wherein the transparent shield comprises a conical shape having an apex.

10. An optical device as defined in claim 9, wherein the second end of the aspheric lens focuses the light into a predetermined focus of illumination having a diameter of about 8 mm at a distance of about 3 mm to about 5 mm from the apex of the transparent shield.

11. An optical device as defined in claim 1, wherein the light-generating source comprises an LED.

12. An optical device for focusing light emitted from a light-generating source of a dental instrument, the optical device comprising:

an aspheric lens having a first end that is substantially flat and a second end that is aspheric, wherein the first end is configured for receiving light directly emitted from the light-generating source, and wherein the second end is configured for focusing the light received by the first end; and

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a transparent shield configured for securely holding the lens in place with the first end held facing the light-emitting source, wherein the transparent shield protects the aspheric lens from contact while enabling light to pass therethrough.

13. An optical device as defined in claim 12, wherein the aspheric lens and the transparent shield are each composed of material compositions comprising at least one of glass, aluminum dioxide, sapphire, quartz, acrylic, polyacrylic, polypropylene, and silicone.

14. An optical device as defined in claim 13, wherein the aspheric lens is one of either hyperbolic, ellipsoidal, and parabolic.

15. An optical device as defined in claim 14, wherein the aspheric lens focuses the light entering the first end of the aspheric lens into a focus of illumination comprising a diameter of about 8mm at a distance of about 3mm to about 10mm away from the aspheric second end of the aspheric lens.

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16. An optical device as defined in claim 15, wherein the dental instrument comprises an LED, and wherein the LED is attached to the end of an extension arm.
17. An optical device as defined in claim 16, wherein the transparent shield is removably attachable to the end of the extension arm.

18. An optical device for focusing light emitted from an LED of a dental instrument, the optical device comprising:

an aspheric lens having a first end that is substantially flat and a second end that is aspheric, wherein the first end is configured for receiving light directly emitted from the light-generating source, and wherein the second end is configured for focusing the light received at the first end;

an extension arm that extends away from the dental device and that is configured for securely holding the aspheric lens in a placement with the first end facing the LED; and

a transparent shield configured for protecting the aspheric lens from physical contact during use and for allowing light to pass therethrough, wherein the transparent shield is removably attachable to the extension arm.

19. An optical device as defined in claim 18, wherein the aspheric lens and the transparent shield are each composed of material compositions comprising at least one of glass, aluminum dioxide, sapphire, quartz, acrylic, polyacrylic, polypropylene, and silicone.

20. An optical device as defined in claim 17, wherein the aspheric lens is one of either hyperbolic, ellipsoidal, and parabolic.